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AUTHOR Cooke, Robert A.; And Others
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ABSTRACT

The study focuses on the survey Feedback--Problem Solving--Collective Decision intervention, a structural/task-oriented approach to planned organizational change. The objective of this research program is to further refine an organizational development approach which provides schools with a structure consistent with the environment of educational systems, the professional capacities of school personnel, and the inherent demands of the educational technology. A modified and abbreviated version of this district-level intervention was pilot tested and evaluated in a previous action-research project. The pilot program focused on the superimposition of complementary collective decision structures over the existing authority configuration in schools through the use of survey feedback and problem solving processes. The intervention succeeded in increasing organizational flexibility and adaptability by providing for problem identification, solution generation, and change initiation at the faculty level. Product evaluation confirmed that the structural intervention brought about significant favorable changes in teacher work attitudes and perceptions of collectivity in organizational decision processes. (Author/RC)

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Assessment of a Structural/Task Approach to Organization Development in School Systems

a paper prepared
by

Robert A. Cooke
Survey Research Center
Institute for Social Research
University of Michigan

Robert B. Duncan
Graduate School of Management
School of Education
Northwestern University

Gerald Zaltman
Graduate School of Management
School of Education
Northwestern University

ABSTRACT

This NIE-funded project provides for the continued development, implementation, and evaluation of a model educational organization development strategy. The study focuses on the Survey Feedback--Problem Solving--Collective Decision intervention, a structural/task-oriented approach to planned organizational change. The objective of this research program is to further refine an organizational development approach which provides schools with a structure consistent with the environment of educational systems, the professional capacities of school personnel, and the inherent demands of the educational technology.

A modified and abbreviated version of this district-level intervention was pilot tested and evaluated in a previous action-research project. The pilot program focused on the superimposition of complementary collective decision structures over the existing authority configuration in schools through the use of survey feedback and problem solving processes. The intervention succeeded in increasing organizational flexibility and adaptability by providing for problem identification, solution generation, and change initiation at the faculty level. Product evaluation confirmed that the structural intervention brought about significant favorable changes in teacher work attitudes and perceptions of collectivity in organizational decision processes.

This NIE project provides for the expansion and intensive evaluation of the intervention needed to bring this research to its fruition. The revised intervention focuses on the implementation of complementary collective structures at the school district level. Included are components to facilitate principal collective action, inter-organizational decision making, and the introduction of technological innovations in the system. An important feature of this study is the evaluation of the structural intervention including measures of effort, performance, process, and efficiency.

sections of this paper are condensed from:

> "An Assessment of a Structural/Task Approach to Organization Development in School Systems," Robert J. Coughlan (1925-1973), G. Zaltman, R. Duncan, A. Mohrman, S. Mohrman, R. Cooke. Evanston, Ill.: Northwestern University (NIE Proposal).
>
> "The Structural Development of Educational Organizations," R. Coughlan & R. Cooke. Ann Arbor, Mich.: SRC/ISR, University of Mich., 1974 (mimeo).

ASSESSMENT OF A STRUCTURAL/TASK APPROACH TO ORGANIZATION DEVELOPMENT IN SCHOOL SYSTEMS

A Research Program Sponsored by
The National Institute of Education

INTRODUCTION

The purpose of this study is to refine and field test a task-oriented, structural approach to organizational development (OD) in schools. The research builds upon our previous experience and findings obtained from an earlier field experiment which employed a pilot version of the intervention in a sample of seven randomly-selected elementary schools. A primary objective of the strategy is to superimpose complementary collective decision structures over the existing authority structure of the school. The approach provides for OD by incorporating data discussion and group problem solving within the collective decision process. The collective decision model is designed to complement and operate within the boundaries of ongoing decision processes and provide dual decision structures for meeting the problems of staff development and organization improvement in schools.

Data from our initial study indicated that the superimposed collective decision structures improved the organizational health of the participating schools, technical level problem solving processes, and teachers' attitudes toward important aspects of their work environment. This was accomplished by providing the faculty with structured opportunities for school problem identification, solution generation, and change inititation. Survey feedback acted to initiate collective decision processes by providing an objective basis for problem and need identification. Task-oriented problem solving sessions provided for problem analysis and solution generation. An overlapping group structural configuration emerging from dual decision processes provided for improved vertical communication and facilitated change legitimation and implementation in the experimental schools.

Our original interest in designing and testing this survey feedback--problem solving--collective decision intervention (SF-PS-CD) stemmed from three basic dissatisfactions with the more commonly-used change strategies in schools. Two basic approaches to change have been employed in the past. The first focuses on individual and/or group development. An outgrowth of the human relations movement in industry and elsewhere, it is represented by such "person-changing technologies" as self-awareness exercises, group therapy, sensitivity training, and encounter groups (Harmon, 1970). The second approach stresses structural and/or technological considerations. Stimulated by a renewed interest in efficiency in education, it is exemplified in a variety of programs and techniques such as management by objectives, program planning

and budgeting, operations research, and cost-benefit analysis (Kaufman, 1970). In addition to questions concerning effectiveness, our dissatisfactions with these approaches centered mainly around issues of efficiency, acceptance, and manageability.

First, the financial outlays associated with most change programs based either on variants of "sensitivity training" or "systems analysis" generally exceed the budgets of most school districts--exactly at a time when school boards are under fire from legislatures and taxpayers to cut costs. We were concerned that school systems much in need of improvement would fail to engage in OD efforts because of the expenses for outside consultants, purchases of equipment, employment of new personnel, and manhours off the job. We were interested, therefore, in exploring a method of OD which seemed to hold promise for effecting durable change while minimizing direct and indirect costs to the client system. Preliminary results from our previous study indicate that the efficiency requirement had been satisfactorily achieved.

Second, in our work with administrators and teachers in recent years we have been impressed by an apparent growing staff resistance to change programs that emphasize either the personality traits of individuals on the one hand, or "dehumanized technologies" on the other. It seemed to us that school personnel would be more accepting of an OD program which avoided a strong focus on either of these elements. Again, data from our preliminary experiment indicated that the aim of high faculty and administrative acceptance had been attained.

Finally, both the knowledge base supporting the more commonly-used OD methods and the specialized roles required for their implementation are relatively complex and underdeveloped. The approach we investigated, on the other hand, involves the application of a comparatively simple and better-understood technology. Program Leaders elected from the current faculty and trained in data feedback and group problem solving processes, standardized attitude questionnaires, and a series of problem solving sessions with planned follow-up action programs comprise the basic ingredients of the strategy. The findings of our preliminary study indicated that the requirement of program manageability had been met.

In summary, the previous study provided impressive support for the SF-PS-CD intervention as an effective, efficient, and acceptable organizational development model, one geared to the technology of education, the professional orientations of school personnel, and the inherent uncertainty found at the technical core (faculty) level of the school (Coughlan, Cooke, and Safer, 1972). The current study, under NIE sponsorship, is designed to expand, refine, and evaluate the theory, process, and methods and to lay the groundwork for the dissemination of the strategy to a wider audience of school systems.

This report on our NIE research program is organized into four major sections. First, a short overview of the theory underlying this OD program is presented. Second, selected components of the basic collective decision intervention are reviewed. Third, some newly-developed components of the OD program are described within the context of the results obtained from our previous experiment. Finally, an overview of the evaluation design being used for this study is presented.

THEORETICAL BACKGROUND

Underlying the SF-PS-CD intervention is the assumption that organizations can exhibit multiple decision structures for responding to environmental uncertainty. For the purposes of this project, we have differentiated between authority decision structures and collective decision structures. Authority decision structures represent those procedures, roles, and arrangements associated with decisions flowing from the higher-order institutional (school board) and managerial (administrative) levels inward to the technical core (faculty) subsystem. Collective decision structures represent those procedures, roles, and arrangements associated with decisions which flow from the technical core outward to the higher-order levels.

Organizations operate as open systems as their institutional and managerial subsystems react to changes in the external environment and adjust organizational goals to meet the needs of the community and society. Managerial level personnel service the technical core by mediating between the technical subsystem and those who use its services and by procurring the necessary resources for carrying out the technical function (Parsons, 1958). Decision making and problem solving at the higher organizational levels "buffers" technical core activities from the uncertainty of the institutional or external environment. In this manner, the technical core operations--the teaching and learning process --can be carried out with some degree of order, rationality, and certainty (Thompson, 1967). However, the degree to which the school technical core can or should be cushioned from uncertainty by the higher-order subsystems is limited. The particular technology of education and the diversity of students are factors contributing to technical level uncertainty which cannot always be reduced by school boards and administrators. Teachers are often not only in the best organizational location but also possess the professional expertise to make decisions, collaboratively solve problems, and coordinate certain technical activities.

We reasoned that as organizational technologies become increasingly complex and dynamic, and as technical personnel interact with diverse clients, operatives (teachers) must often assume control over and make decisions regarding the accomplishment of those objectives specified by the higher-order subsystems. While administrators control and present specifications to the technical subsystem, technical personnel reciprocally control managers as

"needs" for the accomplishment of organizational tasks are identified (Parsons, p. 43). The extent to which control flows inward or outward--and perhaps more importantly, the extent to which arrangements and procedures are needed for higher-level or technical core decision making--is hypothesized to be a function of the relative uncertainty of the organization's institutional and technical environments. School systems exhibit well-established, and perhaps overly-structured, authority decision arrangements for the reduction of institutional environmental uncertainty. On the other hand, schools rarely exhibit effective collective decision structures which would allow those individuals closest to the teaching operation to solve problems, initiate changes, and reduce technical uncertainty (Hawley, 1972). [This distinction between technical core and institutional environments should not be overstated--there is a complex and dynamic relationship between the factors concerned with organizational-societal interaction and technical-task activities. Furthermore, both types of environmental uncertainty can potentially be reduced through either collective or authority decision processes. A detailed explaination of the theory underlying this intervention, along with a discussion of these issues, is presented in Cooke (1973, pp. 21-56, 90-158) and will be included in a manuscript in preparation.]

The SF-PS-CD intervention was formulated on the theory that effective organizations must be structured to process information and reduce uncertainty emanating from internal and external environmental components (see Duncan, 1972, on environmental uncertainty). Since collective decision processes are typically underdeveloped in public schools, we assumed that the structuring of collective activities would be beneficial for most school organizations and teaching staffs. As such, our intervention is not designed to increase the flexibility of authority decision structures nor to increase directly the participativeness of authority processes. Instead, the program focuses on the structuring of collective processes and is expected to (1) provide for regularized collaborative decision making at the technical level; (2) indirectly provide for increased faculty participation in decision making and improved teacher work attitudes; and (3) provide for increased organizational flexibility by permitting the school to alternate between collective and authority decision strategies as necessary.

Collective and authority decision processes differ significantly and the two processes require dual sets of communication networks, documentation and filing procedures, specialized roles, and regularized decision seeking and implementation procedures. Though different organizational arrangements seem necessary for these processes, we assumed that collective and authority processes could operate simultaneously within formal social systems and reinforce one another in a complementary manner.

In designing the SF-PS-CD intervention, we have considered models of complementary authority and collective decision processes which focus on change and innovation. Models of authority

decision processes have been conceptualized by Hage and Aiken (1970), Rogers and Shoemaker (1971), Zaltman, Duncan, and Holbek (1973) and others. In authority decision processes, change decisions are made by individuals hierarchically differentiated from the subordinate adopting unit--those individuals who must actually use the innovation. Authority decision processes, though essentially initiated and directed by higher-order level personnel, may be participative as technical core members are involved in the early stages of the change process.

Collective decisions are those made by the members of an organization by consensus. In contrast to authority processes, collective decisions are initiated by technical core personnel--those individuals who must eventually adopt and implement the change decision (see Rogers and Shoemaker, 1971, on collective processes). Collective decision processes, consistent with both the bureaucratic and professional characteristics of schools, can be visualized in terms of a seven-stage model. The process includes: (1) Collective evaluation, the comparing of organizational objectives to present performance and the specification of problems and needs (by technical core members); (2) Stimulation, the development of suggestions and potential solutions to existing problems and/or the activation of interest in new ideas; (3) Internal diffusion, the transmission of proposed changes horizontally throughout the organization and the modification of solutions (to better fit the needs of the organization and to increase acceptance); (4) Legitimation, the upward communication of proposed solutions and the sanctioning of those solutions, when necessary, by the formal leaders of the organization; (5) Adoption, the acceptance of the solution in its final form by organizational members and the final planning for change; (6) Implementation, the stage at which the new program or procedure is put into practice; and (7) Routinization, the standardization of the roles and procedures associated with the change. Routinization of a change permits evaluation of the new program within the context of other organization procedures and objectives, thus reflecting the circular nature of collective processes.

The SF-FS-CD program incorporates task-oriented OD components to support each of these collective decision subprocesses. Though the simultaneous operation of dual decision processes could potentially lead to counter-productive conflict, we expected that formally sanctioned collective processes, carefully coordinated and integrated with the school authority structure, would prove to be beneficial. First, in providing for collective structures, the intervention potentially taps the frequently neglected decision making and problem solving capabilities of the teaching staff. Second, collective structures should also provide for increased change in schools because teachers may be in a better position than administrators to advocate certain changes (see Gallaher, 1965, on the administrator's role as a change advocate). Third, complementary collective structures will potentially enhance the flexibility and adaptability of schools. The organization can switch between structures as required for different decision

situations and also switch between structures from one decision subprocess to the next. This latter type of alternation is important because decentralized (collective) structures may facilitate the introduction of change, internal diffusion, and adoption, but centralized (authority) structures may be most efficient for implementation (Wilson, 1963). Finally, we felt that the collective decision strategy, by extending faculty control and allowing teachers to solve problems directly affecting their work lives, would improve teacher attitudes toward their work environment.

THE SF-PS-CD INTERVENTION

Selected components of the basic SF-PS-CD intervention are described in this section. These OD components were pilot-tested in our earlier study and, with certain modifications, provide the foundation for the present program. Following some notes on program initiation, the OD components and some of their hypothesized effects are discussed in terms of the collective decision subprocesses.

The SF-PS-CD intervention is undertaken with the knowledge and consent of key staff members at all levels of the school district. School personnel are provided with an overview of the project, including: a description of the SF-PS approach; a statement on the committees to be established; an estimate of the time required for program activities; and a brief description of the training programs for the elected representatives. At the beginning of the intervention, organizational members are asked to serve on one or more of three program administrative agencies: Policy Committee, Review Committee, and the Program Group. Acting in concert, these overlapping groups potentially superimpose a collective decision making configuration over the existing authority structure of the school and district.

The Program Group consists of all faculty members within an elementary school (or all faculty members within a department in a secondary school), an elected Program Leader, and an elected Group Monitor. The functions of this group include: interpeting the survey results, identifying group problems, determining what action can be taken to alleviate problems, and communicating problems and recommendations upward to the Review Committee.

The Review Committee operates at the school level and includes the principal, Program Leader, Group Monitor, and another member designated by the principal. Review Committee functions include the sanctioning of Program Group recommendations, explaining why certain changes cannot be approved, and communicating upward to the Policy committee and downward to the Program Group when necessary. The Policy Committee operates at the district level and includes the superintendent, principal, and Program Leader(s), and a Group Monitor. Policy Committee functions include responding to questions, suggestions, and recommendations coming from

the Program Groups, approving changes, and explaining why particular changes cannot be implemented. [The committee structure differs somewhat for elementary schools versus that for secondary schools. For purposes of brevity, this paper will focus on the elementary school situation.]

In the SF-PS-CD process, the elected Program Leaders serve as key members on all three administrative committees. These teachers are provided with an intensive four day training experience on survey feedback procedures, the problem solving process, and problems and principles of effective communication. The training sessions are designed to (1) improve the leadership skills of the elected faculty representatives and (2) give these teachers confidence in their ability to direct the faculty program. The leaders' objective is to encourage problem analysis and discussion within a clearly defined and relatively impersonal framework in which teachers have the capacity to make decisions and recommendations and the authority to take action on certain identified problems and needs. Group Monitors receive training on the use of program documents and the process evaluation of group and program activities.

Collective Evaluation Collective decision processes are initiated at the natural work group level with the administration of the School Feedback Survey, a new instrument which measures teachers' attitudes toward important aspects of their task and work environments. In addition to a core set of indices, this questionnaire includes items generated by members of the participating schools. At the data collection stage, anonymity is preserved to minimize perceived threat and maximize the veridicality of faculty responses. Mean scores for each school and the entire group of schools are calculated, profiled, and passed on to the Review Committee in each building. Assuming that the experimental school faculties elect to have the data fedback, Program Leaders report the survey results to their own groups by means of conference techniques and graphic methods. Data is first analyzed along general dimensions (e.g., work load, materials and equipment) and then in terms of the individual survey items comprising each dimension. Faculty members can compare their own attitudes to those of their work group and can also contrast their group's scores to the average scores of a number of similar schools. The objective is to sensitize the teachers to their own school's problems and needs in the areas of task accomplishment, internal integration, and organizational adaptation to environmental demands (Miles et al, 1969).

Feedback at the group rather than individual level facilitates the pooling of information, improves subsequent problem solving, and increases the potential for the implementation of decisions (Mann and Likert, 1952). Feedback and problem solving activities are carried out in natural work groups (faculty only) rather than in family groups (which include administrative superiors). Hierarchically differentiated family groups may create barriers for subordinates in open communication and creative problem solving

(Bridges, 1967). Also, satisfaction with and acceptance of the data is possibly greater when presented by the group leader than by a hierarchical superordinate, internal staff specialist, or the external agents.

Preliminary data discussions focus on defining the importance of the problem areas identified by the survey feedback. As teachers concentrate only on those problems of consequence to them (and as other problems are handled through authority decision processes), interest and concern should be high and faculty participation should be effective. The SF-PS-CD program prescribes that faculty members precisely specify problems, define underlying reasons and causes, and develop specific change goals. Problems are broken down into subproblems and interpreted at the role, inter-role, and organizational levels. Precise subproblem specification is emphasized because this has been shown to lead to higher quality solutions in laboratory experiments (Maier and Maier, 1957). This precision should increase group members' understanding of organizational problems, facilitate solution generation, and simplify the eventual choice between suggested alternatives.

Stimulation If Program Group members do not feel competent to solve certain problems, relevant information is communicated upward to the Review Committee for problem solving through authority processes. For those problem areas within the teachers' sphere of expertise, the Program Group moves on to solution generation activities. As during the evaluation stage, deliberate efforts are made by the Program Leaders to minimize discussions of subjective elements of group interaction such as those which are the point of focus in sensitivity training. The teachers are encouraged to be "objective" and factual--to approach problems in terms of situations, not behaviors or personalities, and in terms of past difficulties to be overcome and future improvement goals to be achieved.

Program Leaders are provided with a set of "ground rules" for guiding Program Group meetings. The ground rules are designed to effect creative problem solving, to retain a task-orientation, and to standardize faculty decision making processes. For example, attempts are made to have all group members contribute to the discussion, to avoid conformity effects, and to defer solution generation until various interpretations of the problem have been explored. Faculty members are asked to say "Perhaps the group feels this way..." rather than "I feel this way..." to keep the discussions on a less personal level. Similarly, group members are encouraged to use job titles or organizational functions to be performed rather than names of individuals. Problems are to be worded and suggestions offered in the form of positive statements. The Program Group is encouraged to identify a number of possible solutions for each problem and to withhold final selection until a number of alternatives have been discussed and carefully reviewed (Maier and Hoffman, 1960). Also, Program Leaders

refrain from evaluating members' contributions as "good or bad" whenever possible.

After all alternative solutions are evaluated, the group selects what it perceives to be the "best" course of action. This includes steps to be taken at the school level within the purview of faculty authority as well as those recommendations to be communicated to the Review Committee for approval. A timetable is kept of the action programs initiated for each problem, including starting dates, interim progress reports, and completion dates. Minutes are taken by the Program Group Monitor who records the ideas expressed during the meetings but does not mention the names of contributing members. Members are invited to review the minutes to determine whether they accurately reflect the group's thinking. The purpose of these and other procedures is to formalize the informal teacher work group and to initiate regularized collective decision activities. We believe that guidelines such as these reduce personal threat and anxiety and minimize the social and psychological costs of suggesting new alternatives.

Internal Diffusion and Legitimation The SF-PS-CD intervention incorporates mechanisms which provide for the communication of identified problems, proposed solutions, and relevant changes to all organizational members who might be affected by the change decision. In small elementary schools, where the entire faculty acts as a single problem solving group, the need for additional in-school horizontal communication is minimal. Internal diffusion mechanisms become necessary as Program Groups deal with changes which would have district-wide, inter-school implications. Procedures for district-level internal diffusion have been built into this expanded intervention and will be discussed later in this paper.

For intra-school issues, the critical activity after problem solving is communicating the Program Group's recommendations to the administration for approval and action. The Program Leader presents the Review Committee with well thought-out and carefully prepared proposals for solving school problems and meeting organizational needs. Recommendations are either approved, rejected, or modified at the Review Committee level. (Suggestions which require district office approval are sent up to the Policy Committee by the review group.) In the case of rejection at the Review Committee level, the principal is encouraged to explain why the proposal is unacceptable and how it might be modified to increase its feasibility. Program Leaders are then responsible for communicating the reasons for rejection and proposed modifications to their Program Groups. In some cases, the recommendations can be re-formulated on the basis of new information provided by the administrators and then resubmitted by the Program Group.

This overlapping group structure not only sets the stage for legitimation, but also provides the potential for more effective vertical communication. First, the intervention enhances

subordinates' abilities to interact constructively with superiors by focusing on communication between groups rather than individuals (see Jackson, 1959). Second, the transmission of under-developed and inconsistent statements of problems by individual teachers is replaced by documented statements of carefully analyzed problems and possible solutions. Third, problems are stated in impersonal andtask-oriented terms, organizational titles are used rather than names, and unconstructive criticism and negatively-worded statements are avoided. Downward communication should also increase in relevancy and efficiency as feedback from the Review Committee focuses on those policies directly related to problems identified by the faculty. Finally, communication channels will be used more effectively as faculty members learn what types of changes they can implement without going through the legitimation procedure.

Adoption We expect that the acceptance of solutions and innovations generated through SF-PS-CD processes will be relatively high. The guidelines necessitate a minimal level of acceptance at the early stages of the collective decision process; general group consensus is required before the idea is communicated upward for legitimation. The SF-PS-CD process is expected to bring about both higher faculty acceptance of changes and greater organizational innovativeness as a result of (1) increased member involvement in decision processes and (2) increased group interaction. As teachers take part in decision processes, their understanding of the problem, influence over the decision, and awareness and understanding of selected alternatives increases. Increased interaction among the faculty group possibly broadens the organizational perspective of members, increases the exchange of ideas between heterophilous individuals, and speeds up the diffusion of new ideas within the school. These factors, along with members' perceptions of group commitment and consensus, should heighten the acceptance of and the innovativeness of faculty decisions (see Havelock, 1969; Rogers and Shoemaker, 1971).

While such factors can account for faculty acceptance of the solutions generated by the Program Group, adoption is concerned with teachers' acceptance of the solution in its final form--after legitimation and possible modification. Faculty acceptance should remain high to the extent that effective vertical communication increases their understanding of the problem area and related organizational constraints. Less distorted and more objective vertical communication should, hopefully, bring about more consistency across organizational levels regarding members' attitudes toward problems and preferences for alternative solutions.

The adoption stage reflects the final planning for the change and the preparation of the system for implementation. Preliminary planning will have already taken place, as, for example, the logistics of alternative solutions are studied to determine relative feasibility. For final planning, program guidelines recommend the formation of a subcommittee to deal with the proposed

changes in greater detail. Specific group members are assigned responsibility for defining needed resources for implementation and for exploring the consequences of the change. A time table for implementation is developed which assigns who is to do what by when, thus firming up starting, interim progress checks, and completion dates.

Implementation and Routinization The SF-PS-CD intervention is expected to bring about the successful implementation of the majority of group initiated changes. We expected that the implementation of new programs and procedures would be facilitated by the process of intra-group cooperation and personal and group commitment. The formalization of each group decision as an "Action to Take" and the scheduling of faculty activities should also promote implementation. Group Monitors carefully record each decision outcome and the specific action for which each member is responsible. In this way, "The changed beliefs are removed from the area of good intentions to the realities of everyday behavior" (Katz and Kahn, 1966, p. 402). Furthermore, scheduling and the setting of deadlines should increase members' propensity to engage in the non-routine change activities (March and Simon, 1958, p. 186).

Implementation of collective decisions can also be accomplished by "switching" to the authority structure at this stage. Implementation through authority processes taps both the managerial expertise and the advantageous organizational location of administrators for effecting changes. Whether collectively or authoritatively implemented, a high proportion of the initiated changes should be routinized if members are sufficiently committed to working through any unanticipated problems resulting from implementation.

A major responsibility of the Program Group at the routinization stage is to follow-up on faculty initiated changes. The Program Leader, or a specially commissioned subcommittee of the Program Group, takes responsibility for periodically evaluating the extent to which recommendations have been implemented and the degree to which new programs or procedures have alleviated problems. Failure to solve a particular problem indicates that the area must be singled out for further intensive analysis.

Follow-up activities implicitly include the evaluation of the SF-PS-CD program's effectiveness. As teachers participate in the collective decision process and as group recommendations are successfully implemented, a generally high level of satisfaction with the program should hopefully be realized. We anticipated that the collective process would be perceived by organizational members as sufficiently meaningful to (1) ensure the continuation of faculty problem solving activities and (2) bring about a reinforcement of change supporting norms. Reflection on group problem solving processes should act to reinforce norms supporting the "communication of information" and "collaborative

action" (Miles et al, 1969).

The internalization of problem solving guidelines by organizational members, the use of vertical communication linkages on an on-going basis, and the acceptance of new collective decision roles should contribute to structural changes in the school. The intervention is designed to bring about structural changes--to introduce relatively stable organizational arrangements and procedures for collective decision making. (Though we expect "person" type changes to accompany the intervention, these changes should involve organizational roles and expectations rather than improved inter-personal relations). Sustained utilization of the program's componenets would effect organizational changes observable in terms of Pugh's (et al, 1963) conceptual scheme for organizational analysis.

For example, standardization of collective activities would increase as program guidelines are used to regularize faculty decision making, decision seeking, and program implementation processes. Formalization would increase as program documents and handbocks are used to define new roles, as Program Group activities are recorded and filed, and as special SF-PS-CD forms are used for vertical communication. The degree of centralization should decrease as the Program Group is given the authority to make certain decisions without higher level legitimation. The continued use of the overlapping program committees would imply a change in the shape or configuration of the decision making structure. These structural modifications should make the school more flexible as dual decision processes become available, facilitate faculty initiated change, and improve teachers' attitudes toward their work environment.

NEW PROGRAM COMPONENTS

The core components described above were pilot tested in our earlier study. These components have been modified somewhat to increase the potential impact of the OD program. More importantly, a number of new components have been added to the program to eliminate some of the shortcomings of the earlier intervention. Some of these new components will be described here within the context of our previous findings.

The pilot study was conducted in a target population of 24 elementary schools. Seven schools received the SF-PS-CD intervention treatment; the remaining seventeen schools were randomly assigned to three control conditions: survey feedback only, pretest-posttest control, and posttest only control.

At the organizational level, we hypothesized that, as a result of the intervention, collective decision structures would be established in the experimental schools which in turn would increase organizational effectiveness, innovativeness, and health. At the individual/work group level, we hypothesized that experi-

mental school groups would perceive greater effectiveness, collectivity, and participation in decision making and as a consequence develop more favorable attitudes toward their total work environment.

Our results showed that teacher collective decision and change supporting structures were institutionalized in a manner complementary to the school's existing authority structure in a majority of the seven experimental schools. One school failed to establish collective structures; in another the structure was established but was not perceived to be entirely complementary to the authority structure, probably due to principal turnover.

Documentary evidence revealed increased school organizational effectiveness when analyzed in terms of selected second-order systems properties which purportedly contribute to "organizational health" (Miles, 1965). Structured interviews with principals and program leaders noted the greatest improvement in the communication adequacy of the schools. Improvements were also indicated in several other areas: (1) power equalization, (2) resource utilization, (3) group cohesiveness, (4) faculty morale, (5) problem solving adequacy, and (6) innovativeness. Principals and Program Leaders were generally enthusiastic concerning the effects of the intervention on their schools. Significant faculty-initiated changes were evident in all schools which successfully initiated collective decision structures.

At the end of the one-year experimental period, questionnaire data disclosed that teachers in the experimental schools perceived greater collectivity and participation in decision processes than did the control school faculties. A positive relationship obtained between the quality of the superimposed decision structures and favorable faculty perceptions of collectivity. The intervention, however, had its greatest impact on faculty work attitudes. Survey data indicated highly significant improvements in teacher attitudes towards many aspects of the work environment.

In general, the results of the pilot study indicated that the SF-PS-CD intervention offers a highly promising approach to OD in schools. The program, of course, was not without its weaknesses. Four of the new intervention components designed to remedy some of these shortcomings will be described here.

District Level Collective Structures The previous program focused on randomly selected schools within a number of districts. Program Groups tended to focus on school level problems; this minimized the generation of solutions and changes with district-wide implications. A SF-PS-CD program directed to all the schools within a district is both more consistent with modal structural arrangements of educational systems and provides added potential for effecting more sweeping and durable changes. Consequently, the current intervention includes between-school horizontal overlapping groups to bring about better inter-school problem solving and cooperation.

The new intervention includes a "Project Group" which consists of all the Program Leaders from the district's schools. Project Group members elect their own leader who is responsible for initiating inter-school meetings, communicating information to administrators, and coordinating the efforts of the Program Leaders. To keep the time demands placed on the Program Leaders within reasonable bounds, the Project Group meets only four to six times a year. These meetings, along with a document-based formal communication network maintained between meetings, should have numerous functional consequences for district-wide activities. First, the Project Group can serve to coordinate the efforts of all concerned teachers in solving problems which pervade the entire district. Second, the Project Group can hasten the diffusion of new ideas and techniques throughout the district and bring about increased awareness and acceptance of innovations. Third, the district group can bring together subgroups of Program Leaders who are dealing with the same types of school-level problems. The combined efforts of two or more Program Leaders can facilitate problem solving and forestall conflicting or mutually-exclusive solutions proposed by different schools. This cooperation will also prevent duplication of district administrators' efforts as Policy Committee meetings could include representatives from all schools dealing with a similar problem. Finally, the Project Group meetings permit the Program Leaders to discuss collective decision activities and shortcomings within their various schools and suggest overall program improvements.

Principal Collective Activities Though the previous program tapped the problem solving capabilities of faculty members, it failed to provide for collaborative decision making at the principal level. The revised intervention includes a principal collective decision component designed to generate middle-management problem solving, increased vertical communication, and improved coordination between schools.

Principals can offer valuable mutual assistance in meeting the expectations of various groups, providing their faculties with instructional leadership, and performing their various management responsibilities. The authority structure found in most schools fails to provide for structured group problem solving or mutual support among principals (although there may be regularly scheduled meetings of principals, often with the superintendent or other members of the central office staff). The current intervention provides collective decision structures at the principal level to support those activities not maintained by formal authority arrangements. The Principal Group differs from regular principal meetings in that the central office administration is not present at feedback and problem solving meetings. This arrangement should provide a non-threatening atmosphere in which the group can identify problems and generate solutions.

The program for principals is similar in process to the intervention previously developed for the faculty, but is responsive to middle-management needs and problems. Data for survey

feedback is collected through the use of the Principal Survey which focuses on both intra-school and district-wide issues. This survey has been designed to stimulate discussion on such issues as staff utilization, special services, district research and development, community relations, etc.. Policy formulation, planning, and organization could also be discussed at the principals' meetings with input from superordinates and the faculty through collective processes.

Organization-External Environment Interaction Schools are under increasing criticism for failing to interact effectively with those individuals, groups, and organizations that constitute their external environments. School district authorities at the institutional level-the school board--are not always capable of achieving adequate coordination and communication between these subpublics and the schools (Kirst, 1970). Mechanisms for organization environment adaptation also are currently under-developed at the technical core and managerial levels. Relations with parent groups, governmental agencies, and other community organizations (e.g., health agencies, social welfare departments, law enforcement) tend to be limited to crisis situations. Sporadic inter-organizational activity of this variety is not particularly conducive to effective school problem solving, planning, or decision making.

The SF-PS-CD core components are designed to focus on internal environmental uncertainty and are not expected to bring about optimal organizational-external environment interaction. However, the core components set the stage for improved inter-organizational cooperation. As collective decision activities at the principal and faculty levels become routinized and legitimized, personnel at the technical core of the school organization are better able to interact with outside groups in a systematic manner. A set of inter-organizational components have been added to our intervention to take full advantage of the decision making and communication potential offered by the SF-PS-CD program.

For example, the expanded program will provide for structured and task-oriented interaction between a small sample of the collective decision groups and selected external organizations. This activity will be initiated after SF-PS-CD procedures are firmly established in the target schools. On the basis of problem and need identification during the problem solving sessions, Program Groups will identify outside groups or organizations for inter-unit decision making. Problem solving activities, including both faculty members and representatives of selected organizations, will be initiated. Our purpose here is to develop prototypes for inter-organizational decision processes which later could guide the school system's interaction with other relevant groups.

Technological Change Strategy The previous study strongly suggested that the SF-PS-CD intervention greatly improved the faculty's ability to diagnose problems, develop solutions, and implement change decisions. Though the program was successful

in bringing about changes in the schools, it did not greatly stimulate the early adoption of externally-generated innovations. The new intervention includes components designed to promote technological change in the target schools. These change strategies build upon the foundation established by the original SF-PS-CD components. Collective structures, problem solving skills, favorable teacher work attitudes, and open communication are essential for effective implementation of technological change components.

The SF-PS-CD intervention takes decisive steps in preparing faculties to receive new information. Knowledge input can be increased through the use of "temporary systems" which provide for the interaction between faculty members and external specialists. Collective decision activities encourage teachers to identify problems and generate solutions. They also permit the faculty to search for and initiate interaction with outside specialists who can help solve identified problems. The potential for temporary system success increases as the client (faculty) initiates the interaction and understands the problem or the need for change (Cooke and Zaltman, 1972). In the expanded intervention, Program Leaders and principals will receive information on the use of "temporary systems" as a way of introducing externally-generated innovations into the school.

Later in the program, temporary system activities will be scheduled on "in-service" days. As in-service programs become an integral component of collective decision activities, the probability that knowledge gained from in-service education will be put into practice in the classroom should increase. Relevance is heightened as the faculty members define their needs, initiate, and implement in-service activities. Change supporting norms and structures should facilitate the implementation of externally generated innovations, technological or otherwise.

These four new components, along with a number of other program modifications, should help make this intervention responsive to the needs of school districts. The extent to which the expanded SF-PS-CD program meets its objectives will be assessed through the application of a multi-level evaluation model.

EVALUATION

The objective of this project is to develop and implement a model educational organization development strategy to provide schools with a structure consistent with the environment of educational systems, the professional abilities of school personnel, and the inherent demands of the educational technology. This goal necessitates a thorough evaluation of the district level SF-PS-CD program which can best be accomplished through the joint efforts of the researchers and the practitioners participating in the program. In this section, we offer an overview of an extensive evaluation model which should provide for a relatively complete

assessment of our organization development intervention. This evaluation model is based on the work of James (1961) and Suchman (1967) who suggest that program assessment be conducted along a number of criteria. Our evaluation activities can be described in terms of five categories of criteria identified by James and Suchman: (1) effort; (2) performance; (3) process; (4) adequacy of performance; and (5) efficiency.

Effort Evaluation The most basic form of evaluation is concerned with specifying and measuring the program inputs retrospectively. Effort evaluation will be conducted to define the various program activities, the human and financial costs of the activities, and the degree to which program activities were consistent with the intervention design. This simplist form of evaluation provides the researcher with important input-related data which is instrumental for higher-order program evaluation.

At the research team level, effort evaluation will focus on the relative costs of program development, implementation, and evaluation. The objective here is to isolate the costs of instituting survey feedback and problem solving activities and establishing complementary dual decision structures in schools. As the financial and human costs of the intervention are established, we will be able to determine the economic feasibility of the structural organization development program for other school districts. Further, this will enable the researchers to specify those program components which were very costly (or inexpensive) to implement.

Effort evaluation at the user level will be concerned with the distribution of district resources to the various program activities. Inputs at this level will be analyzed in terms of program initiation, routinization, and evaluation. Program initiation costs include the time allocated for training and organizing purposes. Evaluation costs include the time and energy devoted to program assessment functions demanded by the experimental status of the intervention. The most important and potentially informative effort evaluation category concerns the program routinization activities. An attempt will be made to determine the time allocated to the various program activities within each elementary school under study.

Program activities will be classified in terms of the collective decision subprocesses of evaluation, stimulation, internal diffusion, legitimation, and implementation. The allocation of Program Group, Project Group, Review Committee, and Policy Committee efforts to (a) collective decision, (b) participative authority decision, and (c) inter-organizational decision activities will be analyzed. This assessment will provide cross-organizational and inter-level data on the efforts of various groups within the sample. Effort evaluation will enable the researchers to determine the extent to which program activities were properly carried out, the reasons for successes and failures, and the relationship between effort and intervention effectiveness.

Performance Evaluation Performance evaluation will focus on the effects of the district-level SF-PS-CD intervention. In assessing program performance, the evaluation will be concerned with both intermediate and ultimate program objectives. The most important intermediate objective is the superimposition of complementary collective decision structures over the existing authority structures in the district. Ultimate objectives include improvements in teacher work attitudes, increased organizational effectiveness and innovativeness, and improved communication adequacy within the district. Program effects will be assessed at the organizational and individual levels of analysis.

Specific predictions have been generated to allow for the field testing of the general research hypotheses. Intermediate hypotheses, at the organizational level of analysis, include:

I. As a result of the SF-PS-CD intervention, collective decision structures will be initiated and routinized in the experimental schools in a manner complementary to the existing authority structural configuration.

II. As a result of the SF-PS-CD intervention, inter-organizational decision structures will be initiated and routinized among the district suborganizations and between the district and relevant organizations in the environment.

These hypotheses will be tested through an analysis of primary structural variables operationalized by Pugh (et al, 1968). The Pugh instruments have been modified to reflect the structural characteristics of schools in terms of centralization, specialization, formalization, configuration, and standardization. Structural attributes will be measured on a pre- and posttest basis to identify changes within the experimental system. Comparison districts will be analyzed to provide comparative data on a posttest only basis.

Intermediate hypotheses, at the individual level of analysis, include:

III. As a result of the SF-PS-CD intervention, district administrators will perceive effective complementary decision making processes in their school and district.

IV. As a result of the SF-PS-CD intervention, faculty members will perceive greater collectivity and participation in school decision making and change processes.

Whereas hypotheses I and II assume an objective decision-based definition of structure, these individual level hypotheses approach structure from a phenomenological point of view. The implication is that structural organization development strategies are effective only to the extent that organizational members perceive the emerging complementary structures as operative and useful. These hypotheses will be tested with revised versions

of the Group Problem Solving in Schools inventory. These instruments have been designed specifically to measure teacher and administrator attitudes toward collective decision subprocesses in their school and district. Instruments will be administered (to randomly selected personnel) on a pre- and posttest basis and control group data will be obtained for comparative purposes. Static t-tests, F variance tests, and gain score analyses will be used to analyze this type of data.

Ultimate or final objective hypotheses will be tested at both the individual and organizational levels. The objectives of the SF-PS-CD intervention involve school performance, organizational health, and system innovativeness:

V. As a result of the SF-PS-CD intervention and the new change supporting structures established in the district, school performance (measured in terms of student achievement) will increase in the experimental schools.

VI. As a result of the SF-PS-CD intervention and the new change supporting structures established in the district, favorable changes along second-order system properties (defined as dimensions of organizational health) will occur in the experimental schools.

VII. As a result of the SF-PS-CD intervention and the new change supporting structures established in the district, the initiation and implementation of innovations will increase in the experimental schools.

The ultimate objective of any OD program is to improve school effectiveness and the quality of teacher and student performance. While only slight, if any, improvements in student achievement can be anticipated, even a moderate increase on this dimension would greatly support the case for organization development in schools. This hypothesis will be tested by means of residual achievement scores not predicted by prior achievement and three other causal variables (see Bargen and Walberg,1974; Coughlan and Cooke, 1974).

Improved organizational health has been the hypothesized product of previous survey feedback and problem solving interventions in schools (e.g., see Miles et al, 1969). Organizational health includes numerous second-order system properties, including communication adequacy, cohesiveness, problem solving capability, and resource utilization (Miles, 1965). As in our previous action-research project, semi-structured interviews will be conducted to investigate improvements in organizational health. Research assistants and Group Monitors will be enlisted to interview administrators, Program Leaders, and randomly selected faculty members. An important component of organizational health is innovativeness. While the interview will include questions on this issue, hypothesis VII also will be analyzed by means of docu-

mentary evidence and on-site observation.

At the individual level of analysis, performance objectives center on the attitudes and behaviors of school personnel. General hypotheses include:

> VIII. As a result of the SF-PS-CD intervention and the new change supporting structures established in the district, teacher attitudes toward their work environment will become more favorable in the experimental schools.
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> IX. As a result of the SF-PS-CD intervention and the new change supporting structures established in the district, principal attitudes toward their work environment will become more favorable in the experimental schools.
>
> X. As a result of the SF-PS-CD intervention and the new change supporting structures established in the district, teacher absenteeism will decrease in the experimental schools.

Teacher and principal work attitudes will be measured by the School Feedback Survey and the Principal Survey. Pretest data and "benchmark" scores will be fed back to respondents for problem identification and specification purposes. These surveys will be administered at least one more time (after a one year interval) to provide for additional feedback and performance evaluation.

Other product or performance evaluation hypotheses have been generated for this program. Supplementary performance criteria include the distribution of power and control in the district, the quality of decision making, attitudes toward innovation, etc.. A special survey has been constructed to measure these and other interesting organizational/individual variables. Pretest and posttest data collected from randomly selected respondents will provide for additional performance evaluation data uncontaminated by feedback (this data will not be reported back until the NIE program is completed). At the behavioral level, one important indicator of the success of the intervention involves personnel absenteeism and turnover. Hypothesis X focuses on absenteeism and is suggestive of other behavioral predictions.

Process Evaluation A major objective of the research program is to provide a thorough process evaluation of the SF-PS-CD intervention. While our previous project emphasized performance evaluation, the current study has been designed to provide for extensive process analysis as well. We see process evaluation as being important for three reasons. First, this evaluation enables the researcher to "make sense" of the performance assessment findings by establishing a "causal connection between what was done and the results that were obtained" (Suchman, p. 66). Second, adequate process evaluation will greatly facilitate the modification and further development of our theoretical model. Third, process evaluation can provide for the monitoring of pro-

gram activities within the experimental schools. Program failures, inadequacies, and dysfunctions can be defined at an early stage and remedial action can be recommended. (It should be noted that this use of process evaluation can potentially interfere with the "pure" performance evaluation of the intervention. However, this contaminzation becomes less severe to the extent that the Group Monitors' process evaluation activities become an integral part of the intervention itself.)

Suchman notes that process analysis can be made along four main dimensions dealing with "(1) the attributes of the program itself, (2) the population exposed to the program, (3) the situational context within which the program took place, and (4) the different kinds of effects produced by the program" (p. 67). Though we will practice all four types of process analysis, the first and the fourth dimensions seem to be highly responsive to the needs of our program.

The research team members will work with the Program Group Monitors in carrying out the process evaluation. To initiate this cooperation, Group Monitors are trained in some basic evaluation skills and are instructed in the importance of such evaluation. Importance is placed on the evaluation of program attributes and the analysis of collective decision procedures. The objective here is to isolate specific weaknesses in the program and to define those activities which are contributing heavily to the success of the intervention. Process analysis will focus on survey feedback procedures, faculty problem solving and change initiation activities, inter-level communication and interaction, inter-organizational decision subprocesses, documenation adequacy, etc.. (Process evaluation findings can be fed-back to the Program Leaders to permit self-assessment and the continuing modification of program activities.)

Group Monitors will also participate in specifying the effects of the program. Suchman suggests that this type of process evaluation can focus on the duration of effects, unintentional or side-effects, and specific types of effects (behavior, attitudinal, cognitive). Effect assessment neatly complements performance evaluation be defining the results of the intervention not included in the formal statistical evaluation design. Performance evaluation is further enhanced as effect assessment elicits the manner in which program components operate to improve organizational functioning. For example, we propose that complementary structures increase system effectiveness by permitting for alternation between structures within change processes. An evaluation task will be to test this proposition and determine the patterns which certain innovation decisions follow. We anticipate being able to sort change situations into a finite typology and subsequently determining a characteristic structural picture of the innovation decision process used to solve the problem and bring about the change.

Such evaluation will be conducted by school personnel in

cooperation with the researchers. This collaborative strategy exemplifies the type of contribution practitioners can make to the overall program evaluation effort. Teachers will be assigned greater responsibility for other attribute and effect process assessment activities. For purposes of brevity, we will not discuss these activities any further in this paper. However, we would like to stress that practitioner involvement in evaluation has three important consequences in addition to increasing the accuracy of the researchers' evaluation. First, this involvement tends to increase the practitioners' interest in the intervention and confidence in the evaluation. Second, as the educators gain skills in evaluation techniques, their ability to perpetuate the organization development effort increases. Third, the evaluation of action-research programs traditionally suffers from a "researcher bias." As practitioners participate in evaluation activities, they not only improve the data base for assessment but also counteract the researcher bias.

Process evaluation also includes the specification of the recipients of the program and the conditions under which the program was implemented. We will investigate these dimensions of the program in an effort to determine the applicability of the intervention to other school systems. For example, was our experimental sample representative of the average elementary school district? Are there important differences between the personnel in the sample schools and the teachers and administrators in other schools? Did particularly community characteristics contribute to the success of the program. Questions such as these must be considered in determining the modifications necessary for the successful introduction of survey feedback and collective decision making in other school districts. This type of process evaluation should maximize the usefulness of the reports to be disseminated throughout the educational community.

Adequacy of Performance & Efficiency Evaluation Data obtained through effort, process, and performance evaluation can be utilized for two other types of evaluation not commonly performned by educational researchers. Evaluation of the adequacy of performance assesses the "degree to which effective performance is adequate to the total amount of need" (Suchman, p. 63). Effort evaluation specified the relative amount of time and money allocated to each program component. Process evaluation indicates how effectively the various program components contributed to school performance. The researcher is put in a position where he can determine whether this effort and performance was adequate for the needs of the system. For example, evaluation might indicate that the Program Leader training was insufficient to overcome the structural barriers to faculty problem solving in the district. Similarly, evaluation could suggest that the program components failed to compensate for critical interpersonal relation problems within specific schools. Adequacy of performance evaluation suggests an important "way of thinking about results" and all program participants will be introduced to this concept.

Efficiency evaluation concerns the ratio of program performance to program effect. Two variations of efficiency evaluation will be applied during the district level SF-PS-CD program. First, the relative efficiency of the various program components will be examined. Though we do not expect to be able to identify precisely the costs and benefits of each component, it seems that some estimate of relative efficiency may be possible. Second, an attempt will be made to analyze the efficiency of the SF-PS-CD intervention in relation to other strategies for organization development. Our past research suggests that this structural approach to organizational change may be a comparatively inexpensive strategy for school development. We hope to be able to accumulate data to either confirm or deny this observation.

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